

## **ABSTRACT**

A method of serving residential broadband subscribers includes establishing a client-server mechanism between the network device of a residential user and a network device manufacturer or an Internet service provider. The network device is provided with a unique identifier. The dynamic IP addresses assigned to the network device are automatically reported and updated to a web server of the device manufacturer or the service provider. The network device can be located and probed according to the identifier and the IP addresses. To facilitate the diagnosis of network devices attached to a residential gateway/router behind the firewall formed by the gateway/router, a protocol is also defined to report and update the network configuration to the web server. The private network configuration behind the firewall is recorded and analyzed for troubleshooting the residential network.